

REMARK/ARGUMENTS

Applicants respectfully request reconsideration of this application in view of the foregoing amendments to the claims and the following comments.

I. The Rejection of Claims 1-28 under 35 U.S.C. § 112, First Paragraph

In the Office Action mailed January 11, 2007, claims 1-28 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. In particular, the Examiner alleged that the claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention. The specific claim language identified by the Examiner as lacking adequate support is the feature of independent claims 1 and 13 calling for the heat-soaking step to be performed “*without the application of pressure or vacuum to the insert.*”

Applicants respectfully disagree. As discussed in detail in Applicants’ previous Amendment, dated October 25, 2006, a negative limitation can be *impliedly* disclosed in a patent application simply by virtue of the application’s detailed description of the invention without mentioning the feature, one way or the other. In such a circumstance, persons skilled in the art would have understood that if the feature had been required, it necessarily would have been mentioned.

In this case, persons skilled in the art would have understood from the original written description that Applicants intended for the insert to be heat-soaked “without the application of pressure or vacuum.” Such persons would have understood that, if a pressure or vacuum had been required, the written description would have described it. They would have deduced from the lack of such a description that a pressure or vacuum was not a necessary requirement of the invention. They also would have understood that the lack of a pressure or vacuum could have served as a basis for distinguishing their invention from a prior art reference requiring it. Moreover, the Examiner even acknowledged (in section 4 of the Office Action) that the Board of Appeals or a court could agree with Applicants’ assertion.

Nevertheless, in the interest of advancing the prosecution of this application, Applicants have amended independent claims 1 and 13 to remove the recitation of “without the application of pressure or vacuum to the insert.” That feature is no longer a requirement of Applicants’ claimed invention.

With these amendments to independent claims 1 and 13, the § 112 rejection of claims 1-28 should now be withdrawn.

II. The Rejection of Claims 2-6 and 14-18 under 35 U.S.C. § 112, Second Paragraph

Also in the Office Action, dependent claims 2-6 and 14-18 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly failing to particularly point out and distinctly claim the subject matter which Applicants regards as their invention. The Examiner alleged that the recitations in these dependent claims calling for “microwave energy,” “ultraviolet energy,” and “infrared energy” etc. are inconsistent with the recitations in parent claims 1 and 13 calling for “radiant heat.” In particular, the Examiner asserted as follows:

However, radiant heat is generally known and considered to be IR – infrared – heat and would not be considered by one of ordinary skill to be microwave, UV or radio frequency. Hence, the “energy” of claims 2 and 14 should be -radiant heat-; the infrared energy of claims 3 and 15 would already be inherent in claims 1 and 13 and hence these claims would fail to further limit and claims 6 and 18 would be indefinite in reciting heating methods which would not be typically considered to be radiant heating methods.

Applicants respectfully disagree. The term “radiant heat” has a recognized meaning broader than that alleged by the Examiner. Following are several relevant dictionary definitions of “radiant” and “radiant heat”:

radiant: 1. emitting heat or light. 2. consisting of or emitting radiation: radiant heat. *American Heritage Dictionary of the English Language*, Fourth Edition (2000);

radiant: *Physics.* emitted or propagated by radiation. *Webster’s Encyclopedic Unabridged Dictionary* (2001);

radiant heat: heat energy transmitted by electromagnetic waves in contrast to heat transmitted by conduction or convection. *Webster's Encyclopedic Unabridged Dictionary* (2001).

radiant heat: *Thermodynamics.* heat energy transmitted by electromagnetic waves in contrast to heat transmitted by conduction or convection. *Random House Unabridged Dictionary*, (2006).

From these definitions, it should be clear that sources of energy other than merely infrared sources are recognized as “radiant.” Moreover, these definitions are consistent with Applicants’ usage. For example, paragraph [0023] of the original specification identifies numerous alternative sources of radiant heat:

The infrared energy is especially useful for heating the plastics of the inserts due to the numerous infrared absorption bands inherent in polymeric materials. Alternately, it is possible that ultraviolet light, microwave, radiofrequency or other energy sources could be matched to absorption bands of the insert, for efficient pre-conditioning according to the present invention.

Thus, the use of the terms “radiant heat” and “radiant energy” encompass various forms of radiation as stated in the application, including but not limited to infrared energy.

For further clarity, Applicants have amended independent claims 1 and 13 to refer consistently to “radiant *energy*,” rather than using the alternative related terms of radiant energy and radiant heat. In addition, Applicants have canceled dependent claims 2, 5, 14, and 17, for reasons unrelated to this rejection (their features have been incorporated into independent claims 1 and 13).

For these reasons, the § 112, second paragraph, rejection of remaining claims 3, 4, 6, 15, 16, and 18 is improper and should be withdrawn.

III. The Rejection of Claims 1-28 under 35 U.S.C. § 103(a)

Also in the Office Action, claims 1-28 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over U.S. Patent No. 5,827,614 to Bhalakia et al. (the “Bhalakia patent”) in view of U.S. Patent No. 5,096,652 to Uchiyama et al (the “Uchiyama patent”), taken either alone

or in view of U.S. Patent No. 6,090,336 to Hirmer et al. (the "Hirmer patent"). Applicants respectfully traverse this rejection, for the reasons set forth below.

The Examiner has asserted that the Bhalakia and Hirmer patents disclose the basic elements of Applicants' claimed invention, but lack the feature of heat-soaking an insert using radiant energy derived from a separate irradiation source. Nevertheless, he further asserted that the Uchiyama patent makes up for this deficiency by disclosing the pre-conditioning of an insert using radiant heat provided by a separate irradiation source. Specifically, the Examiner asserted as follows:

Bhalakia et al and Hirmer et al are applied for reasons of record, the references disclosing the basic claimed invention lacking essentially the aspect of providing an irradiation source separate from the mold cavity and heat-soaking the insert part via radiant heat from the source. Newly-applied Uchiyama et al shows a heater that provides radiant heat to a film/insert that is subsequently placed in an injection mold and material injected thereagainst to form a composite product. It is believed that one of ordinary skill in the art would realize that an insert would be heated with an external source, as shown in Uchiyama et al, as easily as being heated on a mold as taught in Bhalakia et al.

Office Action dated January 11, 2007, section 3.

Applicants respectfully disagree. It would not have been obvious to have modified Bhalakia's injection molding machine by adding a radiant heater like that of Uchiyama's. Why would persons skilled in the art have been motivated to make this modification? Bhalakia's inserts already are being pre-conditioned by virtue of the conductive heating provided by maintaining the temperature of a mold cavity at an elevated temperature of 265° F. Moreover, even if Uchiyama's radiant heater would have been added to Bhalakia's molding machine, the resulting machine still would not have carried out the method defined by Applicants' claimed invention.

The Uchiyama patent describes pre-heating a film/insert (col. 8, lines 2-5) prior to vacuum-attraction of the heated film to a mold surface (col. 8, lines 8-10). This is similar to other prior art mentioned by Applicants in paragraph [0005] of the specification. However, this preheating is accomplished using radiant heating without regard to the particular frequencies of

the radiation. The Uchiyama patent lacks any teaching or suggestion that its pre-heating might advantageously be accomplished by radiant energy having frequencies that are *preferentially absorbed* by the insert. Nor does the patent teach or suggest the aspect of the Applicants' invention that the insert be warmed "without losing its structural integrity."

In fact, the Uchiyama patent states that the temperature of pre-heating is 150° to 200° C (col. 8, line 2), which is close to the molding resin temperature of 230° C (col. 14, line 22). In contrast, and as discussed in previous responses, Applicants' invention provides for warming the insert to a temperature substantially less than the final molding temperatures. For example, paragraph [0047] of the specification reads as follows:

"In Examples 9-12, an infrared gauge showed the insert temperature to be in a range of about 98-104° C, after 9 seconds of exposure. This is substantially less than the subsequent molding temperatures, which typically exceed 180° C."

Independent claims 1 and 13 define a method of pre-conditioning an insert for use in injection molding an optical part, including steps of (1) providing an irradiation source separate from a mold cavity, and (2) heat-soaking the insert via radiant energy from the irradiation source such that the insert is warmed but does not lose its structural integrity. In addition, by this Amendment, Applicants have amended independent claims 1 and 13 to define the heat-soaking step to use radiant energy from the irradiation source that "is preferentially absorbed by the insert." This feature previously had been set forth in dependent claims 2, 5, 14, and 17, which have now been canceled, as redundant.

The newly recited claim feature calling for the radiant energy to be "preferentially absorbed by the insert" is not shown or suggested by any of the cited references, including the Bhalakia, Uchiyama, and Hirmer patents. Thus, even if the basic injection molding machine of the Bhalakia patent were to be modified to incorporate the pre-heating feature of the Hirmer patent and the radiant pre-heating feature of the Uchiyama patent, the resulting machine still would not practice the method of Applicants' claimed invention. For these reasons, the § 103 rejection of independent claims 1 and 13 based on the Bhalakia, Uchiyama, and Hirmer patents, is improper and should be withdrawn.

Claims 3, 4, and 6-12 all depend from amended independent claim 1, and claims 15, 16, and 18-28 all depend from amended independent claim 13, adding method features that further distinguish over the cited Bhalakia, Uchiyama, and Hirmer patents. For these reasons, and for the reasons set forth above with respect to parent claims 1 and 13, the § 103 rejection of claims 3, 4, 6-12, 15, 16, and 18-28 is improper and should be withdrawn.

IV. Entry of Amendment under 37 C.F.R. § 1.116(b)

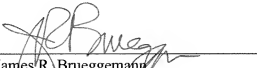
This Amendment should be entered under 37 C.F.R. § 1.116(b), because it merely amends independent claims 1 and 13 to recite features of the invention previously set forth in dependent claims 2, 5, 14, and 17, and also because it presents the rejected claims in better form for consideration on appeal. No new issues requiring further searching are being raised.

V. Conclusion

This application should now be in condition for a favorable action. Issuance of a notice of allowance is respectfully requested. If the Examiner believes that a telephone conference with Applicants' undersigned attorney of record might expedite prosecution of the application, he is invited to call at the telephone number indicated below.

Respectfully submitted,

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